

In der Reihe „Chemnitzer Mathematisches Colloquium“ der Fakultät für Mathematik der TU Chemnitz spricht

Herr Prof. Dr. Bastian von Harrach (Goethe Universität Frankfurt)

über das Thema

Inverse problems and medical imaging.

Der Vortrag findet am

**Donnerstag, dem 18. Februar 2016, um 16.00 Uhr im Raum B202,
Reichenhainer Straße 70**

statt.

Ich möchte Sie hiermit recht herzlich zu dieser Veranstaltung einladen. Das Kolloquium wird von Herrn Prof. Dr. Bernd Hofmann geleitet.

Abstract:

Medical diagnosis has been revolutionized by noninvasive imaging methods such as computerized tomography (CT) and magnetic resonance imaging (MRI). These great technologies are based on mathematics. If the patient's interior was known then we could numerically simulate the outcome of physical measurements performed on the patient. Medical imaging requires solving the corresponding inverse problem of determining the patient's interior from the performed measurements.

In this talk, we will give an introduction to inverse problems in medical imaging, and discuss the challenges in newly emerging techniques such as electrical impedance tomography (EIT), where electrical currents are driven through a patient to image its interior. EIT leads to the inverse problem of determining the coefficient in a partial differential equation from (partial) knowledge of its solutions. We will describe recent advances on this problem that are based on monotonicity relations with respect to matrix (resp. operator) definiteness and the concept of localized potentials.

Prof. Dr. Peter Stollmann
Dekan

